IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	Examiner: Cuong H. Nguyen
KAZUHIRO TAKEDA, et al	Art Unit: 3661
Application No.: 10/708,341	
Filed: February 25, 2004	APPEAL BRIEF
For: BICYCLE DISPLAY APPARATUS WITH DISTRIBUTED PROCESSING	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

This is an appeal brief for the above-captioned matter.

I. Real Party In Interest

The assignee and real party in interest is Shimano, Inc., a Japanese corporation having a principal place of business in Osaka, Japan.

II. Related Appeals And Interferences

There are no prior or pending appeals, interferences or judicial proceedings known to the appellant, to appellant's legal representative, or to the assignee which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. Status Of Claims

Claims 1-37 are pending under final rejection and are under appeal.

IV. Status Of Amendments

No amendment was filed subsequent to final rejection.

V. Summary Of Claimed Subject Matter

The claimed invention is directed to a bicycle display apparatus that displays cumulative information produced from a bicycle related running condition. In the following discussion, cited reference numbers and text are examples only and are not intended to be limiting. Line numbers refer to the line numbers within each individually cited paragraph.

As applied to independent claim 1, a bicycle display apparatus that displays cumulative information produced from a bicycle related running condition comprises:

a computing component (35) (Fig. 3, page 6, paragraph [0022], lines 1-2) that calculates the cumulative information (page 11, paragraph [0035], lines 6-8), wherein the computing component (35) is structured for attachment to the bicycle (computing component (35) is part of first control unit (30) mounted, for example, on the bottom bracket of frame body (2); page 5, paragraph [0020], lines 2-4), and wherein the computing component (35) includes an information output component (output to power supply and communications circuit (34), Fig. 3) for outputting the calculated cumulative information;

a separate display component (32) (Figs. 2, 4 and 5, page 7, paragraph [0024], lines 1-2) housed within a case member (54) and including an information input component (second receiver circuit (61), Fig. 4, pages 9-10, paragraph [0031], lines 3-5) that receives the cumulative information calculated by the computing component (35), wherein the display component (32) displays the cumulative information calculated by the computing component (35) (page 7, paragraph [0024], lines 2-4); and

wherein the computing component (35) is disposed outside of the case member (54) (computing component (35) is mounted at the bottom bracket of frame body 2, whereas case member (54) is mounted to the bicycle handlebar (15); page 5, paragraph [0020], lines 2-4, page 7, paragraph [0023], lines 10-12, Fig. 2).

As applied to claim 18, a bicycle display apparatus comprises:

a display component ((32), Figs. 2, 4 and 5, page 7, paragraph [0024], lines 1-2) structured to be attached to a bicycle;

a receiver (61) (Fig. 4, page 9, paragraph [0031], lines 1-3) for receiving cumulative information produced by a computing component (35) (Page 14, paragraph [0043], lines 4-5) from a bicycle-related running condition (e.g., total distance OD);

a reference information memory (59c) (Fig. 9, page 15, paragraph [0046], lines 2-6) for storing first reference information (e.g., OD1, page 15, paragraph [0046], lines 7-10);

a start input component (24) (Figs. 4-5, page 15, paragraph [0046], lines 1-2) for initiating computation of first additional cumulative information (e.g., TD, page 15, paragraph [0046], lines 7-10);

wherein the display component (32) calculates the first additional cumulative information (TD) using the first reference information (OD1) and subsequent cumulative information (OD) communicated from the computing component (35) to the display component (32) (page 15, paragraph [0046], lines 7-10); and

wherein the display component (32) is structured to display the first additional cumulative information (TD) (Fig. 5, page 7, paragraph [0024], lines 2-4).

VI. Grounds Of Rejection To Be Reviewed On Appeal

Claims 1-6, 11-16, 18-20, 24, 30-31, 34-35 and 37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Downs (US 5,629,668).

Claims 13, 20-23 and 25-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Downs.

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Downs in view of Kitamura (US 6,418,041).

Claim 17 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Downs in view of Quintilian (US 4,319,129).

Claims 32-33 and 36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Downs in view of Eskandry (US 5,653,364) or Purpura (US 6,659,319).

VII. Arguments

Rejection under 35 U.S.C. §103(a) over Downs.

Claims 1-6, 11-16, 18-20, 24, 30-31, 34-35 and 37; Claims 13, 20-23 and 25-29.

Two separate but overlapping obviousness rejections were made using the Downs reference (items 7 and 10 in the final office action dated November 28, 2006). They will be combined here to simplify the discussion.

Claim 1

Downs discloses a conventional data display unit (10) for a bicycle wherein a computer (14) calculates and displays information on a display (16). The computer (14) is housed together with the display (16). Column 2, lines 52-54. The various figures are schematics and do not represent the actual placement of components. Downs neither discloses nor suggests a *separate* display component *housed within a case member* and a computing component disposed *outside the case member.*

The mere fact that the prior art could be modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Laskowski, 871 F.2d 115, 10 USPQ.2d 1397 (Fed.Cir. 1989). While a motivation to modify the prior art need not be expressly stated in a prior art reference, a rejection based on Section 103 still must rest on a factual basis, with the facts being interpreted without hindsight reconstruction of the invention from the prior art. In making this evaluation, the examiner has the initial duty of supplying the factual basis for the rejection he advances. He or she may not, because he or she doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. Ex parte Haymond, 41 USPQ2d 1217 (BdPatApp&Int 1996).

It appears that page 2 of the final office action relies on a lack of a stated utility in the claims to support an obviousness rejection. The claimed invention has many advantages, and there is no requirement in the law to limit the claims to any single advantage. For example, as stated in the Appellant's specification at page 5, paragraph [0020], lines 9-12, since first control unit (30) is disposed on the bottom bracket of frame body (2), it is fairly close to alternating current generator (19). As a result, a short power cable may be used to connect first control unit (30) to alternating current generator (19), and the communication of power between the two may be carried out with high efficiency. It is the recited separateness of the display component and the external nature of the computing component relative to the case member that houses the display component that allows such a configuration.

Page 15, paragraph [0048] also states that the total distance OD is constantly computed by first control portion (35) of first control unit (30), which tends to be more permanently mounted on the bicycle, and that the computed total distance OD is displayed on LCD (56) in third control unit (32). The total distance OD is not computed by third control unit (32) at the display end of the cycle computer. As a result, the total distance OD can be properly displayed even when third control unit (32) is replaced. Furthermore, when the rider owns a plurality of bicycles, the total distances of each of the several bikes can be properly displayed with just one third control unit (32). The total distance also can be properly displayed when third control unit (32) is mounted, regardless of whether or not it was temporarily detached.

An additional unstated advantage of the claimed separate components is that a potential thief cannot steal the critical components merely by detaching the display. In the Downs display unit (10), all of the computing components are disposed in the display case. Thus, a potential thief merely has to detach the display unit from the mounting bracket and then simply obtain the wiring harness and mounting bracket assembly as a replacement part, for example. Thus, the claimed invention also makes the display case less valuable, with the ability to make the major computing components "more permanently mounted to the bicycle" as stated at page 15, paragraph [0048], lines 1-3.

The above is just a sampling of the many advantages of the claimed invention.

The final office action also states that motivation to modify the Downs cycle computer comes from a desire "to make the display as small as possible or to fit into a particular design." However, there is no reason to believe one would want to make the display as small as possible. Cycle computer displays already are only one to two inches square (or rectangular). Given the information displayed as shown in Fig. 5, there is no reason to make the display even smaller, thus making the information more difficult to read during the typical vigorous movements of the bicycle during riding. Even more importantly, however, is the fact that display size is not dictated by the size of the processor, but by the size of the display screen. A view of the inside of any television or computer can easily verify this fact.

As for the statement that placing the computing components internal or external to the display device is a matter of design choice, it is well settled that a conclusory assertion of "design choice" is not a proper basis to reject claims for obviousness. *In re Dembiczak*, 50 USPQ2d 1614 (Fed.Cir. 1999). This is especially true when the issue is whether to place something internal or external to another thing. *In re Chu*, 36 USPQ2d 1089 (Fed.Cir. 1995) (no teaching or suggestion in the prior art that would lead one of ordinary skill to modify the structure of a prior art reference to place an SCR catalyst within a bag retainer, rather than between two filter bags as disclosed in that reference). The factual question of motivation is material to patentability and cannot be resolved on the basis of subjective belief and unknown authority. *In re Lee*, 277 F.3d 1338, 61 USPQ.2d 1430 (Fed.Cir. 2002).

The office action refers to applicant's previous assertion that the display component (16) in Downs does not calculate anything, and that all calculations are performed by computer (14), which is not part of display component (16). The office action indicates a belief that such an assertion constitutes some kind of admission that supports an obviousness rejection. That is incorrect. The fact that computer (14) is not part of display component (16) does not equate with computer (14) being disposed *outside of a case member* that houses display component (16). There simply is no disclosure or suggestion in Downs to dispose a computing component *outside* of a case member of a *separate* display component.

Claim 2

Downs neither discloses nor suggests a cumulative information memory disposed outside of the case member.

Claim 3

Downs neither discloses nor suggests a display component structured to be detachably attached to the bicycle independently of the computing component.

Claims 4 and 34

Downs discloses the use of a battery (26) to power computer (14), but Downs neither discloses nor suggests power being communicated from the computing component to the display component through an *information* output component of the computing component and an *information* input component of a display component.

Claims 5 and 6

Downs discloses a sensor assembly (12) that senses wheel and/or pedal rotation and transmits pulse signals from the sensor to computer (14). However, Downs neither discloses nor suggests power and information calculated by the computing component being communicated *from the computing component to the display component* through a single communication line as recited in claim 5 or in a one-way manner as recited in claim 6.

Claim 11

The final office action states that Downs discloses an ON/OFF switch to power display device (10). No such switch was identified in the office action. Downs neither discloses nor suggests such a switch, and certainly not one that initiates computation of additional cumulative information.

Claim 13

Downs neither discloses nor suggests a display component that stores cumulative information communicated from the computing component in a cumulative information memory as reference cumulative information in response to operation of a start input component.

Claim 14

All computing in the Downs device is performed by microprocessor (24). Downs neither discloses nor suggests a display component that calculates additional cumulative information using reference cumulative information and subsequent cumulative information communicated from a computing component. There is no evidence that control device (28) referenced in the office action makes any calculations of information displayed on display (16).

Claim 18

Independent claim 18 recites, *inter alia*, a receiver for receiving cumulative information produced by a computing component from a bicycle-related running condition, a reference information memory for storing first reference information, and a start input component for initiating computation of first additional cumulative information. As noted above when discussing claim 11, Downs neither discloses or suggests either the ON/OFF switch alleged by the examiner or any switch that initiates computation of first additional cumulative information.

Claim 18 further recites a display component that calculates the first additional cumulative information from the cumulative information received from the computing component. The display component (16) in Downs does not calculate anything. All calculations are performed by computer (14), which is not part of display component (16). Furthermore, insofar as microprocessor (24) is interpreted to be a receiver, then microprocessor (24) does not receive cumulative information produced by a computing component.

Claims 20-29

Downs neither discloses nor suggests the first reference information comprising the cumulative information as recited in claim 20; the first additional cumulative information being calculated by performing a subtraction with the subsequent cumulative information and the first reference information as recited in claim 21; the cumulative information comprising total distance traveled by the bicycle, wherein the first additional cumulative information comprises travel distance as recited in claim 22; a reference information input component for inputting second reference information as recited in claim 24; a display component that calculates second additional cumulative information from the first additional cumulative information and the second reference information as recited in claim 25; wherein the second additional cumulative information is calculated by performing a subtraction with the first additional cumulative information and the second reference information as recited in claim 26; wherein the cumulative information comprises total distance traveled by the bicycle, wherein the first additional cumulative information comprises travel distance, wherein the second reference information comprises a target travel distance, and wherein the second additional cumulative information comprises remaining travel distance as recited in claim 27 (discussed in Appellant's specification at paragraph [0052]); a display component structured to display the total distance traveled by the bicycle, the travel distance, and the *remaining travel distance* as recited in claim 28; or a second computing component that calculates and displays information on the display component as recited in claim 29.

Contrary to statements made in the final office action, how an electronic component performs a particular function is a conventional basis for patentability of electronic components in general and programmed devices in particular, especially when calculations are applied to specific data fields.

The final office action also states at the top of page 10 that it would be obvious to add an extra computing component with a display component "for a benefit of saving required spaces or to increase computing capabilities." However, there is no basis to say that adding a further processor to the Downs device (thereby increasing the number of components) would *save* space in any manner, or that there is any reason to increase computing capabilities by adding a processor to the display as

opposed to merely adding programming to the existing microprocessor (24). The only suggestion to do so comes from the Appellant's specification.

Claim 37

Downs neither discloses nor suggests the computing component being structured for attachment to the bicycle spaced apart from the case member as recited in claim 37, especially when the computing component is outside of the case member as recited in claim 1.

Rejection under 35 U.S.C. §103(a) over Downs and Kitamura.

Claim 9

This basis for rejection is respectfully traversed for the same reasons noted above for claim 1.

Rejection under 35 U.S.C. §103(a) over Downs and Quintilian.

Claim 17

This basis for rejection is respectfully traversed for the same reasons noted above for claim 14.

Rejection under 35 U.S.C. §103(a) over Downs in view of Eskandry or Purpura.

Claims 32, 33 and 36

Eskandry discloses a wallet (90) that can be detachably mounted to an accessory carrier (20) through a hook and loop fastener. Eskandry clearly provides no motivation to make an electrical input component, associated with a second computing component of a bicycle display component (as recited in claim 29), detachable relative to an output component of a first computing component that is separate from and outside of a case member of the display component (as recited in claim 1). This feature allows information associated with the first computing component (as well as the first computing component itself) to remain with the bicycle as discussed in the rejection of claim 1.

Similarly, Purpura discloses a carrier comprising a retractable handle (72) having retractable handle rods (74) and (76). Handle rods (74) and (76) each have a handle portion (78) and (80) that connect to each other through a quick connection mechanism (not shown). Upon detaching handle portions (78) and (80), each folds against and becomes parallel to its respective handle rod via hinges (82) and (84), respectively. Purpura clearly provides no motivation to make an electrical input component, associated with a second computing component of a bicycle display component, detachable relative to an output component of a first computing component that is separate from and outside of a case member of the display component

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VIII. CLAIMS APPENDIX

CLAIM 1. A bicycle display apparatus that displays cumulative information produced from a bicycle-related running condition, wherein the apparatus comprises:

a computing component that calculates the cumulative information, wherein the computing component is structured for attachment to the bicycle, and wherein the computing component includes an information output component for outputting the calculated cumulative information;

a separate display component housed within a case member and including an information input component that receives the cumulative information calculated by the computing component, wherein the display component displays the cumulative information calculated by the computing component; and

wherein the computing component is disposed outside of the case member.

CLAIM 2. The apparatus according to claim 1 wherein the computing component comprises a cumulative information memory disposed outside of the case member for periodically storing the cumulative information calculated by the computing component.

CLAIM 3. The apparatus according to claim 1 wherein the display component is structured to be detachably attached to the bicycle independently of the computing component.

CLAIM 4. The apparatus according to claim 1 wherein power is communicated from the computing component to the display component through the information output component and the information input component.

CLAIM 5. The apparatus according to claim 4 wherein the power and the information calculated by the computing component are communicated from the computing component to the display component through a single communication line.

CLAIM 6. The apparatus according to claim 5 wherein the power and the information calculated by the computing component are communicated from the computing component to the display component in one way only through the communication line.

CLAIM 7. The apparatus according to claim 1 wherein the computing component uses rotation information from a rotating member on the bicycle to calculate the cumulative information.

CLAIM 8. The apparatus according to claim 7 wherein the rotation information comprises rotation of a bicycle wheel.

CLAIM 9. The apparatus according to claim 8 wherein the rotation information comprises signals from an alternating current generator that rotates with the bicycle wheel.

CLAIM 10. The apparatus according to claim 7 wherein the cumulative information comprises a total distance traveled by the bicycle.

CLAIM 11. The apparatus according to claim 1 wherein the display component comprises a start input component for initiating computation of additional cumulative information.

CLAIM 12. The apparatus according to claim 11 wherein the display component further comprises a cumulative information memory housed within the case member for storing the cumulative information communicated from the computing component.

CLAIM 13. The apparatus according to claim 12 wherein the display component stores the cumulative information communicated from the computing component in the cumulative information memory as reference cumulative information in response to operation of the start input component.

CLAIM 14. The apparatus according to claim 13 wherein the display component calculates additional cumulative information using the reference cumulative information and subsequent cumulative information communicated from the computing component.

CLAIM 15. The apparatus according to claim 14 wherein the display component is structured to display the additional cumulative information.

CLAIM 16. The apparatus according to claim 15 wherein the display component is structured to display the cumulative information communicated from the computing component.

CLAIM 17. The apparatus according to claim 16 wherein display component further comprises a display switching component for alternately displaying the cumulative information communicated from the computing component and the additional cumulative information.

CLAIM 18. A bicycle display apparatus comprising:

a display component structured to be attached to a bicycle;

a receiver for receiving cumulative information produced by a computing component from a bicycle-related running condition;

a reference information memory for storing first reference information;

a start input component for initiating computation of first additional cumulative information;

wherein the display component calculates the first additional cumulative information using the first reference information and subsequent cumulative information communicated from the computing component to the display component; and

wherein the display component is structured to display the first additional cumulative information.

CLAIM 19. The apparatus according to claim 18 further comprising a case member structured to be detachably attached to a bicycle mounting bracket and having a housing space adapted to house at least the display component.

CLAIM 20. The apparatus according to claim 18 wherein the first reference information comprises the cumulative information.

CLAIM 21. The apparatus according to claim 20 wherein the first additional cumulative information is calculated by performing a subtraction with the subsequent cumulative information and the first reference information.

CLAIM 22. The apparatus according to claim 21 wherein the cumulative information comprises total distance traveled by the bicycle, and wherein the first additional cumulative information comprises travel distance.

CLAIM 23. The apparatus according to claim 22 wherein the display component is structured to display the total distance traveled by the bicycle and the travel distance.

CLAIM 24. The display apparatus according to claim 18 further comprising a reference information input component for inputting second reference information.

CLAIM 25. The display apparatus according to claim 24 wherein the display component calculates second additional cumulative information from the first additional cumulative information and the second reference information.

CLAIM 26. The apparatus according to claim 25 wherein the second additional cumulative information is calculated by performing a subtraction with the first additional cumulative information and the second reference information.

CLAIM 27. The apparatus according to claim 26 wherein the cumulative information comprises total distance traveled by the bicycle, wherein the first additional cumulative information comprises travel distance, wherein the second reference information comprises a target travel distance, and wherein the second additional cumulative information comprises remaining travel distance.

CLAIM 28. The apparatus according to claim 27 wherein the display component is structured to display the total distance traveled by the bicycle, the travel distance, and the remaining travel distance.

CLAIM 29. The apparatus according to claim 1 further comprising a second computing component that calculates and displays information on the display component.

CLAIM 30. The apparatus according to claim 29 wherein the second computing component is disposed within the case member.

CLAIM 31. The apparatus according to claim 29 wherein the second computing component receives data from the computing component through the information input component and

calculates the information displayed on the display component from the data received from the computing component through the information input component.

CLAIM 32. The apparatus according to claim 29 wherein the information input component is physically detachable from the information output component.

CLAIM 33. The apparatus according to claim 1 wherein the information input component is physically detachable from the information output component.

CLAIM 34. The apparatus according to claim 33 wherein power is communicated from the computing component to the display component through the information output component and the information input component.

CLAIM 35. The apparatus according to claim 1 wherein the case member is mounted to a bracket that is structured to be mounted to a bicycle handlebar.

CLAIM 36. The apparatus according to claim 35 wherein the case member is structured to be detachable from the bracket so that the information output component is physically detachable from the information input component.

CLAIM 37. The apparatus according to claim 1 wherein the computing component is structured for attachment to the bicycle spaced apart from the case member.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None